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JOHN R. PROCTER, Director.

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Exhibit of Hay Grown on Coal Measure Soils,

HOPKINS COUNTY, KY.

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OFFICE GEOLOGICAL SURVEY, )  
FRANKFORT, KY., August 19, 1884. )

I take pleasure in calling attention to the very satisfactory exhibit of grasses from Hopkins County, and to the following statement of the yield of hay, and the method of fertilizing by Mr. J. B. Atkinson, Vice-President and General Manager of the St. Bernard Coal Company. I have long thought that our coal measure soils are peculiarly well suited to the production of certain grasses, and would make excellent meadow lands. The successful cultivation of hay by Mr. Atkinson, on this character of soil in Hopkins County, confirms my impressions, and shows conclusively that we have neglected a most important industry, which would prove highly remunerative over a large area of the State. In Western Kentucky we have about 4,000 square miles, and in Eastern Kentucky 10,000 square miles of coal measures. Hitherto no systematic efforts to produce hay have been made, except on circumscribed areas. The success of Mr. Atkinson should convince any one that, with proper cultivation, hay can be produced at a profit, and that lands worn out by improvident tillage, and thrown out as waste

lands, may, by intelligent system of agriculture and by proper fertilizing, be reclaimed and be made profitable. These lands are peculiarly well adapted to dairy farming and stock raising. It was my good fortune to see the meadows on the St. Bernard Coal Company's lands, this season, and I am positive that I have not seen on the best lands of Central Kentucky better hay than was produced on these coal measure soils. The photographs of these meadows, together with the hay on exhibition, are sufficient evidences on this point. We have millions of acres of such lands, covered with valuable timber. When this is cut the land will produce profitable crops of grain and tobacco for a few years, after which the system described herein can be adopted, and the lands be made profitable for growing hay and grasses. I believe were this course pursued throughout the coal measure regions that the grass crop would prove as remunerative to the farmer as the coal underlying this land would to the miner. Experiments tried on this same soil in grape growing, by the Rev. Father Coenan, of Earlington, Hopkins County, prove that these soils are also well suited for these industries. The Elvira, one of our most valuable grapes, grows to greater perfection here than on the richer soils of Kentucky, and the wine produced sells in the Louisville and Cincinnati markets readily as a Rhine wine; an excellent wine is also made from the Cynthiana. I am assured that profits ranging from \$300 to \$500 per acre have been realized from vineyards in Hopkins County. When such results as the above may be obtained on lands to be purchased at from \$3.00 to \$15.00 per acre, convenient of transportation, having valuable timber and inexhaustible beds of coal, it would seem that a knowledge of the facts alone would be sufficient to people the entire coal fields with thrifty and industrious agriculturists.

JOHN R. PROCTER, *State Geologist.*

## HOPKINS COUNTY GRASSES.

The sample of soil (upland) in the Hopkins County exhibit produced the present summer at the rate of 6,750 pounds of cured hay to the acre—the hay a mixture of timothy, red-top and clover. The field, of forty acres, was put in grass in 1876; was used as a pasture in 1877, 1878, and 1879; put in corn in 1880, in wheat in 1881, timothy being sown with the wheat, and a crop of hay secured in 1882, 1883, and 1884. Part of the field had been fertilized with ashes from cotton-seed hulls, the remainder with stable manure. The entire field had been fertilized but once since 1876. A photographic view of this field is on exhibition.

The sample of clover hay in the St. Bernard exhibit was grown on a field that was classed as "worn out" in 1880. It was fertilized with ashes of cotton-seed hulls in 1880 and 1881, and the past spring a top-dressing of stable manure was given part of the field, with a result of 14,147 pounds of cured clover hay, ready for the barn, to the acre. Used about five hundred pounds of the raw ashes to the acre.

The sample of mixed timothy and clover hay in the St. Bernard exhibit was at the rate of 6,820 pounds to the acre of cured hay. The field producing this hay was so "worn out" in 1874, when first put in grass, that the product of hay was not over twenty tons to the field of fifty acres. Part of the field was then fertilized with leached cotton-seed hull ashes, and produced, in 1875 and 1876, at the rate of ninety-eight tons of hay to the fifty acres. In 1877 the field produced a crop of corn; in 1878 a crop of wheat, and the balance of the field fertilized with ashes. In 1879 and 1880 crops of over one hundred tons of hay were taken from this field; in 1881 a crop of corn; in 1882 a crop of oats and hay, and crops of hay in 1883 and 1884.

The entire field has been fertilized but once since 1874, and that with ashes of cotton-seed hulls—a heavy dressing, equivalent, perhaps, to 800 to 1,000 pounds to the acre of unleached ashes. A view of this field is on exhibition.

The sample of red-top hay in the St. Bernard exhibit was grown on a meadow (bottom land) that has been fertilized twice in ten years with a top dressing of cotton-seed hull ashes. The meadow has been cut each year for ten successive years, and the product the present summer, being the tenth crop, was 4,464 pounds of cured hay to the acre. A view of this field also is on exhibition.

The so-called worn out lands of Hopkins County are readily brought to produce grass heavily by means of the ash of the hulls of cotton seed—from 300 to 500 pounds to the acre show wonderful results. This ash contains, as it comes from the mills, not less than thirty-five per cent. of carbonate and sulphate of potash, and six per cent. of phosphate potash, and to the liberal use of this fertilizer is ascribed the good hay crops of the St. Bernard Coal Company.

JOHN B. ATKINSON,

*Vice-President and General Manager St. Bernard Coal Co.*